

Ch. 3

Sexual Response Cycle

• Introduction

- all sexually dysfunctional males
Carried only one Diagnosis: Impotence
- all sexually dysfunctional Females
Carried only one Diagnosis: Frigidity
- Studies Divided The sexual Response cycle into following 4 phases [descriptive terms]
 - ↳ Excitation
 - ↳ plateau
 - ↳ orgasm
 - ↳ Resolution
- [Physiological Terms] consist of 2 Phases:
 - ↳ Congestion phase: that is Responsible for the changes During The excitation and plateau phase.
 - ↳ Contraction phase: occur During orgasm →

(the biphasic concept of Sexual Response)

- another phase added:-

↳ Sexual desire phase → (+ triphasic concept)

• 3 Main subjects to Discuss

- 1- Motivational aspect
- 2- Physiological aspect
- 3- Behavioural aspect

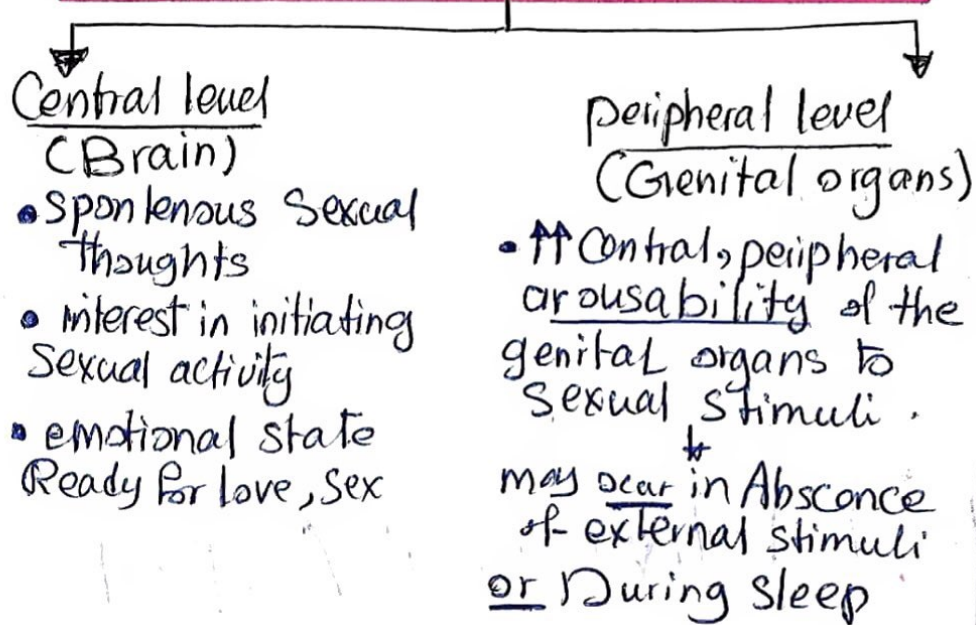
1. Motivational Aspects:-

- 2 levels: Central, peripheral
- 2 mechanisms:
 - ↳ Hormonal → ① Androgens ② Prolactin
 - ↳ Neurological →
- 2 areas → High cerebral center, Hypothalamus
- 2 external factors → Avoidance pain, Attainment of pleasure
- 2 internal factors → Excitatory, inhibitory

• Sexual desire (Libido) :-

Specific Sensations of which the individual move to initiate or to Receive sexual activity

• Manifestations of Sexual desire



• Regulation of Sexual desire

① Hormonal control :-

★ Role of Androgen:-

- The most important Hormone that Responsible for Sexual Desire By their action on

The Brain Centers :- of Both male, Female

- ↑↑ Sexual activity → may lead to ↑↑ Androgen Level in males
- The small amount of Androgen in Female Doesn't mean that they have Lower level of Sexual Desire.
↓
it means that their Sex Centers are more sensitive than males to these small amount of Androgen

• Non-Sexual effect of Androgens :- on the Brain;

- ↳ Liability for aggressive Behavior
- ↳ Competitiveness
- ↳ Criminal Behaviors

★ Role of Prolactin :-

- pathological High levels ⇒ associated
- ↓↓ Sexual Desire
- Erectile Dysfunction

• High prolactin levels → associated e⁻ mainly :- Loss of Desire

• The Erectile dysfunction in these pts is psychogenic D.t Low desire.

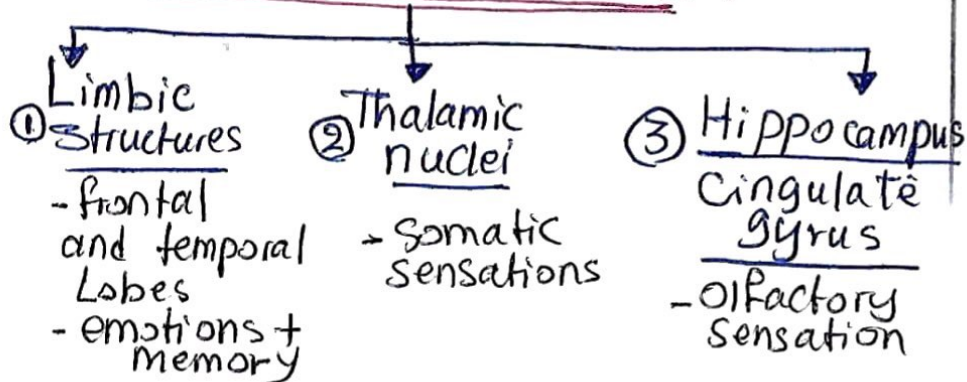
• Example :- the improvement of Erection in hyperprolactinemic pts with sex Therapy only (without Lowering prolactin level)

② Neurological Control :

1. The Regulatory area :-

★ The High Cerebral Centers

- include the following areas :



- all these are Excitatory areas as Regard's Sexual desire and penile erection

④ Amygdaloid nucleus

This is an inhibitory areas as Regard sexual desire

★ The hypothalamus :-

• It's the Regulatory station Concerned e⁻ :-
• Intergration of the impulses Between the above Cerebral Centers and the Low Spinal Centers

• The Areas in hypothalamus involved in Sexual Desire and performance :-

- medial preoptic area (MPOA)
- paraventricular nucleus (PVN)

• Clinical Points :

④ - The limbic System :

- Located in the limbus or the rim of Brain That Surrounds The Brain stem

- This Rim or Ring → Formed of 2 parts :-

↑
upper part

- preservation of species
- stimulation of Sexual Desire and behavior

↓
Lower part

- preservation of self
- stimulation of Hunger sensation, and aggressive Behavior

★ The pheromones :

- close Relationship Between Olfactory and Sexual Function
- The animal genitals : secrete chemical subst. that attract the other sex By Olfaction
- These substances called "pheromones"
- the Role of pheromones in Human is still controversial

★ The amygdaloid nucleus :

- This nucleus Has : Sexual inhibitory Action
- If injury to this nucleus → Hypersexuality
- ↳ Termed "Klüver-Bucy Syndrome"

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2. The Regulatory External Factors

- The human motivations in general Regulated By Dual steering Mechanism :-
 - ↳ Avoidance of pain
 - ↳ Attainment of pleasure
- The sex centers Have Neural and chemical Connections to Both → pain centers
↳ pleasure centers
- When we Have SEX :-
 - The pleasure centers in Brain → Activated, leading to → pleasurable sensations.
- The Conditions that associated è pain → inhibition of sex center.

• Endorphins :

chemical substances related to Morphine, produced By Brain cells, to act on : neurones in the Pleasure center

- The main action are :- to produce pleasure and euphoria, Relieve pain
- They are Responsible for pleasure During sex

3. The Regulatory internal Factors :-

- Include the Central neurotransmitters
- 2 Types :-

Excitatory Central neurotransmitter

• Dopamine :-

- Stimulation of Dopaminergic Center D_1 in the PVN of the hypothalamus

- ↑↑ in sexual Desire
- Induction of erection in Low doses.
- High Doses → stimulate Dopaminergic Receptors D_2 → Ejaculation

- Helped By Release of Oxytocin

• Oxytocin :-

- injection of Oxytocin into the PVN lead to → Erection

- maybe helped By the action of Nitric Oxide.

⇒ clinical points :- The stimulatory effect of dopamine on sexual Behavior is the Basis for the use of apomorphine that stimulates Dopaminergic Receptors in ttt of ED.

Inhibitory Central neurotransmitter

• Serotonin :- is an inhibitory Central neurotransmitter

• Noradrenaline :- Stimulation of $\alpha-2$ adrenoceptors in (MPOA) leads to ⇒ inhibition of desire and Erection

- Stimulation of $\alpha-1$ ⇒ Stimulate the desire erection

• Opioids :- endogenous opioids are inhibitory to Sexual activity

⇒ Clinical points :-

- The antihypertensive Clonidine → Erectile dysfunction as it stimulate the Central $\alpha-2$ receptors
- Yohimbine is used ttt of ED as it Block these Receptors

II. Physiological Aspect :-

A. Sexual Response Cycle in male :- 4 phases

- Excitation • plateau • Orgasm • Resolution

During each phase → 4 changes

- 2 Genital changes • External organs • Internal organs

- 2 Extragenital changes :-

- Autonomic • Somatic

B. Sexual response Cycle in Female

- 4 phase :- • Excitation • plateau • Orgasm • Resolution

- 4 changes During each phase

2 Genital changes - External - Internal

2 Extragenital changes - Autonomic • Somatic

(A) Sexual Response Cycle in Male :-

a. Excitation Phase :-

1 - Genital changes

1 - External Organs :-

- excitation phase occur in 10-30 sec of the initiation of sexual stimulation which can be :-

- * Psychological → Imagination, emotions
- * Physical → tactile stimulation & During the fore play

- The Most important change During this phase

[Penile erection]

(A) Types of penile erection:

a. Sexual Erection :-

Psychogenic

- Result of :- psychogenic stimulation

• During :-

- Imagination
- Sexual thoughts
- Visual • auditory stimulation

- leads to :- stimulation of supraspinal center

activate Both

- sympathetic
- parasympathetic

↓
Erection

Reflexogenic

- Result of :- Reflex stimulation of the penis

- Tactile stimulation of penis → initiate afferent impulses in the pudendal nerve

↓
to reach the parasympathetic spinal center

↓
Erection

b. Sleep (Nocturnal) Erection :-

- Occur spontaneously During sleep with Rapid eye movement (REM) phase
- Mechanism:-

- Reduced supraspinal inhibition of the spinal function During sleep.

- Spontaneous erections → may occur During Waking period with absence of any erotic stimuli or fantasies

- Its misleading terms:-

- as it Not only Restricted to night or sleep
- tumescence:- means only partial erection without Rigidity
- nocturnal:- meaning During night while erection may occur During Day sleep or even without sleep
- most common mistake that Consider The waking from the sleep (morning erection) → Related to fullness Bladder
- There is No relation Between penile erection, and fullness of Bladder

(B) Components of penile Erection

2 components:

- a- Tumescence:- ↑ in length and circumference of the penis as a result of:- ↑ Blood supply in it.
- b- Rigidity:-

↓
Rigidity of Corpora Cavernosa

- Rigidity Result from:- ↑ Blood Pressure of Cavernous spaces

- Radial Rigidity:-

Resistance of penis to Radial compression

- Axial Rigidity:-

Resistance of penis to Axial forces against the glans penis that prevent its Buckling (sudden collapse of the penis) By these axial forces

↓
Rigidity of Glans penis and Corpus Spongiosum

- The Blood pressure in glans and C. Spongiosum → half of that in Corpora Cavernosa.

- Because:- The glans Has No Tunica albuginea.

• The glans is in Direct Connection with the dorsal vein So it act as A-V Fistula During erection

- Its Rigidity → less than that of Corpora Cavernosa.

• Tunica albuginea of C. Spongiosum is thin → less Rigidity

Rigidity of Corpora Cavernosa

Important points

- the Rigidity depend on :-

Thick Tunica albuginea formed of 2 layers

1- inner Circular layer

2- outer longitudinal layer

These layers Help

to $\uparrow\uparrow$ intracavernous pressure and $\uparrow\uparrow$ penile Rigidity (By)

Their Resistance against The expanding Cavernous Tissue.

- These 2 layers Become one layer at :- Ventro-medial aspect of Corpora Cavernosa.

Rigidity of Glans penis and C. Spongiosum

- The Dorsal vein \rightarrow only Partially occluded During erection Between the Buck's area and

The enlarged Corpora cavernosa

$\uparrow\uparrow$ pressure of the glans

- This is augmented By :-

\rightarrow Contraction of IschioCavernosus

\rightarrow and BulboCavernosus

Important points

the $\downarrow\downarrow$ Rigidity of glans penis Help :- to protect The Cervix During Sexual intercourse

- The extreme Caution followed During insertion of penile Prosthesis D.t \rightarrow liability to injury this weak area of Tunica and underlying Urethra.

C Central Control of Penile Erection :-

- Neurological control of sexual Desire \rightarrow المرادف في

D Peripheral Control of Penile Erection :-

a.) Molecular Aspects :-

1- Cellular Mechanisms :-

- 1- Penile erection depends on :- Expansion of its Cavernous Tissue
- 2- This Expansion depends on :- Relaxation of the smooth muscle cells in the trabeculae or the walls of the Cavernous spaces.
- 3- These cells :- about 45% of Cavernous Tissue volume
- 4- The Smooth muscle cells contain 3 Types of filaments :-
 - \rightarrow Thin filaments of Actin
 - \rightarrow intermediate filaments of Desmin
 - \rightarrow Thick filaments of Myosin

5. Under Resting Conditions:-

- These Smooth M. Cells \rightarrow in Contraction state
- The Blood in Sinoid \rightarrow minimal
- penis \rightarrow Flaccid.

6. This Contractile tone obtained as follows:-

- Phosphorylation of Myosin By:- adenosine -5, triphosphate (ATP)

\downarrow
Formation of attachments OR Cross Bridges Between Myosin and Actin \Rightarrow Form Contraction of smooth muscle cells.

7. This state of Contraction is maintained By:-

- ATP
- High Concentration of IntraCellular Free Calcium

8. Under Stimulated Conditions of Sexual excitation \Rightarrow

These Smooth muscle cells Become in a state of Relaxation obtained as follows:-

\rightarrow Cyclic nucleotides

\rightarrow Cyclic adenosine monophosphate (cAMP)

\rightarrow Cyclic guanosine monophosphate (cGMP)

\downarrow
Leads to: $\downarrow\downarrow$ concentration of intraCellular Free Calcium
By:- promoting its Binding to Ca binding protein

\rightarrow Smooth muscle cells \rightarrow undergo Relaxation

9. mechanism of $\downarrow\downarrow$ intraCellular Free Calcium \Rightarrow Depends on:-

Blockage of the Cellular channels of influx of Calcium into the cell $\Rightarrow \downarrow\downarrow$ of its level inside cell.

2- InterCellular mechanism:-

1. The Coordination Between:- the smooth muscle cells of the Cavernous Tissue to mediate Synchronized Contractions and Relaxations Depends upon:-

- InterCellular Communication that occur through gap-junction

2. These gap-junction are:-

interCellular channels in Between the membranes of the adjacent cells That allows:- Calcium ions exchange Between the cells

3. These channels Formed of:-
Proteins (Connexins)

4. The Cavernous Tissue Contains
Connexin 43

Clinical points

- The erectogenic Drugs may contain
one of the following:-

1. Drugs That activate Adenyle
Cyclase:- \uparrow cAMP

- PGE₁
- Vasoactive intestinal peptide (VIP)
- Calcitonin gene related Peptide (CGRP)

2. Drugs That activate Guanylyl
Cyclase:- \uparrow cGMP

- Nitric Oxide (NO)

and its precursors \rightarrow nitroglycerine
in sodium nitroprusside

3. Drugs That inhibit
Phosphodiesterase:- \uparrow cAMP

\uparrow cGMP

Sildenafil (Viagra)

Papaverine

b.) physiological Aspects:-

1- Endothelial Factors:-

• DF:- substances released from the endothelium lining
the penile arteries and the cavernous tissue

• They include 3 Factors:-

↳ @ Endothelium derived relaxing Factor (EDRF):-
= Nitric Oxide (NO)

- NO is synthesized from L-arginine \rightarrow under the effect of
Nitric Oxide Synthase (NOS) in the vascular endothelium

- This process depends on presence of High intra-cavernous
oxygen tension (PO_2)

- PO_2 of 25 mmHg (as in venous blood) \Rightarrow NO is inhibited
(this occurs in flaccid penis)

- PO_2 rise to 100 mmHg (this occurs during erection)

Duct:- \uparrow arterial flow at the start of erection \Rightarrow Helps more
formation of NO

- NO \Rightarrow helps to Relaxation of Cavernous Smooth muscles
through production of (cGMP) \Rightarrow penile erection

→ (b) Endothelins :-

- Endothelin-1 → Synthesized By the Penile Vascular endothelium
- Has :- Vasoconstrictor effect
- Responsible for :- The Contractile Tone of the Cavernous tissue in Flaccid penis
- Opposite to NO
→ High pO_2 → inhibit its Formation

→ (c) Prostaglandins : (PGE)

- Has Vasodilator effect
- maybe Due to stimulation of adenyl cyclase enzyme
• Formation of CAMP
⇒ This leads to :- penile erection.
- PGI₂ ⇒ Has ⇒ Anti-platelets aggregating effects ⇒ That help prevents ⇒ Blood Thrombosis Due to Blood stasis During erection.

- Similar to NO :-
High (pO_2) → Stimulate its formation By :-
the enzyme :- Cyclo-oxygenase → which help :-
Erection

(EDRF)(NO)(PGE)(PGI) ⇒ are the endothelial factors in penile Erection
(endothelin) ⇒ in penile Flaccidity

2- Neurogenic Factors :- (Neurotransmitters)

- D.F :- Substances That Released from Nerve endings at the penile arteries and Cavernous Tissue
- They include 3 Factors :-

→ (a) Cholinergic neurotransmitters :-

- Acetylcholine ⇒ Released from :- Cholinergic nerve terminals
- as a Result of → Activation of the parasympathetic Sacral Center During :- Sexual stimulation

• it helps relaxation of Cavernous Tissue • penile erection

By 2 mechanisms:

(1st) → inhibition of Release of Noradrenaline

(2nd) → stimulation of Release of NO

↳ (b) Adrenergic neurotransmitters:-

Noradrenaline → Released from:-

Adrenergic nerve terminals

- as a Result of:- activation of the Sympathetic Lumbar Center.

- it helps:- • Contraction of Cavernous tissue
• penile detumescence.

- Noradrenaline → Stimulate $\alpha-1$ Receptor in the cavernous tissue

→ $\alpha-2$ receptors in the penile arteries → to produce Vasoconstriction

→ B. Receptors in the Cavernous tissue → VasoDilatation

- The End Result is:- Vaso Constriction

→ Vasodilation Not the end ⇒ Explained By:-
The ratio of α_1 : β receptors inside the Cavernous Tissue is 10 : 1

↓
So → The Vasoconstriction and detumescence ⇒ is Predominance

↳ (c) Non-adrenergic, non-cholinergic (NANC) neurotransmitters:-

NO and VIP ⇒ Released from:- the NANC (peptidergic) nerve Terminals During:- Sexual Stimulation

- They help ⇒ Relaxation of the Cavernous tissue and penile erection through cGMP

★ in conclusion:-

• (NANC), (NO), (VIP) → are The Neurogenic factors (Acetylcholine) Involved in penile erection

• adrenergic Neurotransmitters → involved in penile Flaccidity (Noradrenaline)

• (NO) Released from Both → Vascular Endothelium
↳ NANC nerve ending

C.) Haemodynamic Aspects

1- Vascular phase:-

★ Under Resting Conditions:-

- Penis is in flaccid phase
- Smooth muscles in cavernous tissue tonically contracted by the sympathetic discharge

↓
allowing only a small amount of arterial blood for \Rightarrow Nutrients

- The Diameter of Cavernous arteries \rightarrow 0.5 mm
- The Blood flow velocity = 15 cm/sec

★ Under Stimulated Conditions of Sexual excitation:-

- There is Release of \bullet Endothelial factors from vascular Endothelium
- \bullet neurotransmitter \rightarrow from vascular nerve ending

- Both of them will lead to \Rightarrow Relaxation of smooth muscle cells of cavernous arteries + tissues

- The Diameter of Cavernous arteries is -
= 1 mm

- The Blood flow velocity = 30 cm/sec.

\rightarrow Initial filling phase \Rightarrow penile tumescence

\rightarrow Full penile erection phase \Rightarrow

1- Dilatation of the arteries and Cavernous tissue \Rightarrow
 $\uparrow \uparrow$ Blood flow and Blood volume

2- Compression of subtunical venous plexus \Rightarrow
Between the enlarged Blood sinusoids and tunica albuginea

3- Compression of the emissary veins Between the 2 layers of tunica albuginea \Rightarrow

- $\downarrow \downarrow$ The venous Return to a minimum

- $\uparrow \uparrow$ the intraCavernous pressure to reach above the Diastolic pressure (tumescence phase) then to 90% of systolic pressure (Full erection phase)

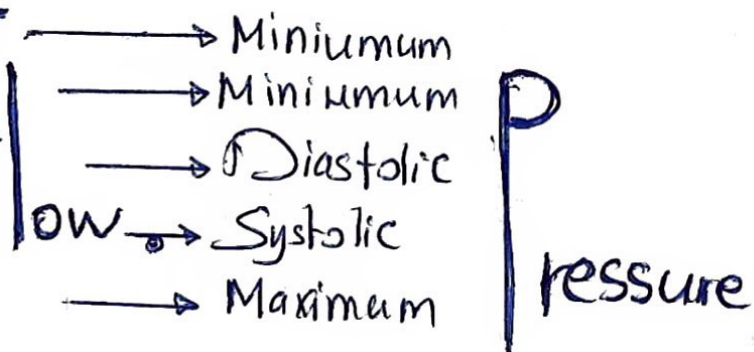
4- As a Result of: $\uparrow \uparrow$ Cavernous pressure \Rightarrow the Blood flow During the tumescence and full Erection \Rightarrow decrease

2- Muscular phase (Rigid erection)

- as a Result of: Dorsal nerve stimulation During Coitus
- There is contraction of: IschioCavernous muscle \Rightarrow leads to \rightarrow more venous Compression
 \rightarrow more Rise in intracavernous pressure to several hundreds mmHg.
- During this phase: No Blood inflow and The penis is a Completely closed space.
- its Short Duration: Due to: - Muscle fatigue prevents \rightarrow Ischemia
 \rightarrow Tissue Damage.

• The phase of erection Summarized as follows:-

- 0 \rightarrow Flaccid phase \rightarrow Minimum
- 1 \rightarrow Filling phase \rightarrow Maximum
- 2 \rightarrow Tumescence phase \rightarrow Decrease
- 3 \rightarrow Full Reaction phase \rightarrow Decrease
- 4 \rightarrow Rigid erection phase \rightarrow Minimum



2- Internal Organs :

- The testes → start show Enlargement
Due to Congestion and elevation
Due to → contraction of the Cremasteric muscles

Extra Genital changes :-

Autonomic Changes

- There is Starting Rise in the Blood Pressure
- Heart Rate;
- Respiratory Rate

Somatic Changes

- There is Semi-Spastic Contractions of
 - Facial
 - Intercostal
 - abdominal muscles

PLateau phase :-

Genital changes :-

1- External Organs :-

- This phase continues for about (30 sec - 3 min)
- During which there is Accentuation of the physiological Response that happened in the excitation phase.
- The penile erection → Becomes more Rigid
- ↑↑ the Size of the glans
- ↑↑ Diameter of penile shaft
- Scrotum → Smoothing of the skin and flattening

2- Internal Organs :-

- Accentuation of the Responses of the excitation phase.
- The testes → more enlargement in volume By 50%.
→ elevation, Rotation
- Few drops of mucoid secretions of Cowper's gland.

Extra genital changes:

- Accentuation of the changes that happened in the excitation phase as follow:-

Autonomic changes

- more ↑ in BP, HR, RR
- Sex flush in skin
↓
Maculopapular Rash on abdomen → spread to chest, face, arms, Thighs
- more in Fair persons

Somatic changes

- Generalized Myotonia
- Semispastic Contractions of
 - ↳ Facial
 - ↳ Intercostal
 - ↳ abd. muscles

ORGASM phase

- The person Reaches a Peak → where the Body → Suddenly Discharges its accumulated sexual tension termed [orgasm]
- Last only → Few seconds

- it's the Shortest phase of the sexual Cycle.
- Orgasm:- Cerebral event of intense pleasure sensation that occur simultaneously with ejaculation.

Ejaculatory process

Stimuli of Ejaculation:-

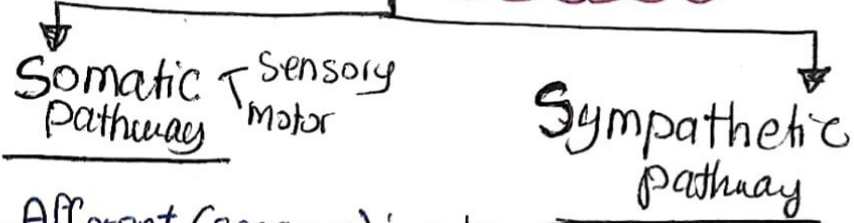
Central (Cerebral)

- Stimulation of some Cerebral Centers → Ejaculation without genital stimulation
- in young male → ejaculation may occur By Fantasies only
- Fears, psychic Trauma ↓ Inhibit ejaculation
- The Cerebral Centers for ejaculation → very close to The Centers For erection

(Genital) Peripheral

- Rhythmic Tactile stimulation of the glans and shaft ↓ essential for ejaculation
- This stimulating effect may be
 - ↳ Facilitated OR
 - ↳ inhibitedBy the Cerebral stimuli

● Neuropathway of Ejaculation :-



- Afferent (Sensory) impulse
→ Resulting from genital stimulation travel along the puddendal nerve
↓
toward → Spinal cord segments (S_{2,3,4})

- Efferent (motor) impulse travel from same spinal segments towards → Somatic pelvic floor muscles + Perineal muscles.

Sympathetic Pathway

- Efferent (motor) impulses travel from :- Spinal cord segments (T_{10,11,12} + L_{1,2})

Through :- the hypogastric plexus
toward :- the Unstriated muscles of the
→ prostate
→ seminal vesicles
→ vas deferens
→ Bladder neck.

● Phases of Ejaculation :-

[1] Emission :-

- The first phase of ejaculation.
- There is expulsion of Seminal fluid from 17

The prostate, Seminal vesicles, vas deferens ⇒ into Posterior Urethra.

• Concomitant contraction of the Internal sphincter ⇒ to close the Bladder neck to prevent Retrograde of the semen into the Bladder.

• This phase Can be Voluntarily Controlled Before it occurs.

• It depends on : Contractions of the Muscles of the prostate, Seminal Vesicles, Vas -

• Once it occurs and the Semen Reaches the posterior Urethra -

The ejaculation Become ⇒ Inevitable

[2] Ejaculation proper (antegrade)

• 2nd phase.

• There is Expulsion of the Seminal fluid from :- The posterior Urethra into :- Outside The penis

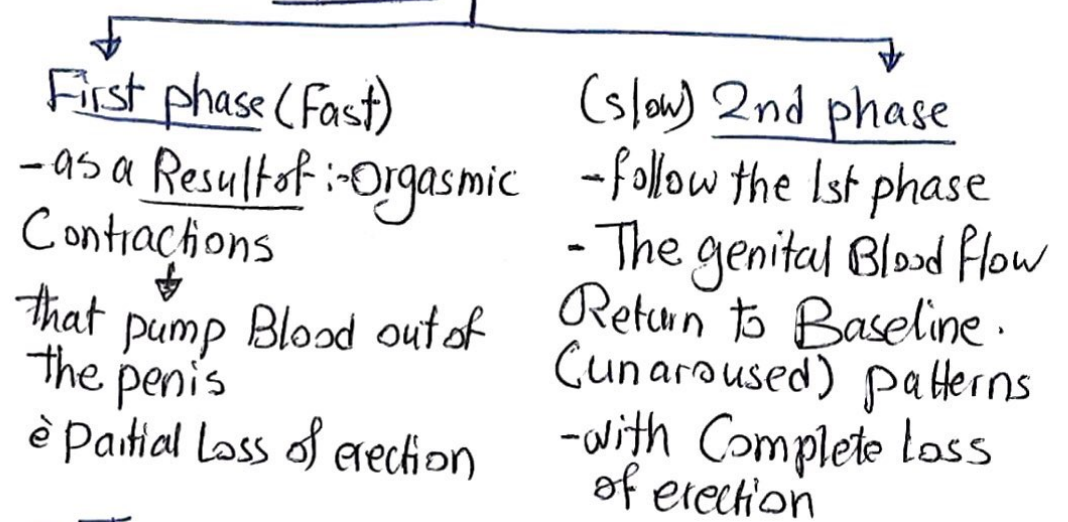
- This phase is \rightarrow Inevitable.
Not Voluntarily Controlled.
- It depends on:- Contractions of the Pelvic floor muscles + Ischiocavernosus + bulbocavernosus.
- These Contractions occur :-
Rhythmically at 0.8 sec interval
- This phase Associated :-
The intense pleasure of Orgasm
- and analogous to the Orgasmic phase in Female.
- The extragenital phases = plateau phase

Resolution phase.

- The Duration of this phase = Variable
- If Orgasms occur \Rightarrow 10-15 minutes with sense of well-being

- If orgasms Doesn't occur \Rightarrow it's about (10-15 hrs) with sense of exhaustion depression + pelvic pain.

- Detumescence or loss of penile erection occur in 2 phases



- The most important and ch. ch Features of the resolution phase in Males :- is :-

The Refractory Period :- its the period of time after male Orgasm During which further Sexual excitation or Orgasms are impossible
It may last :- From Few minutes = to few hrs or few days

- this Refractory period is $\uparrow\uparrow$ in The following 2 conditions:

- Increase age of The individual
- Increase number of Repeated ejaculation within a period of time

Clinical points

* Orgasm without ejaculation :-

- may occur prepubertal in some Boys
- ↳ who experience Orgasm During genital Stimulation But NO semen production
- Postpubertal :- in some men e' Retrograde ejaculation Caused By:

- ↳ DM
- ↳ neurological Disease
- ↳ Bladder neck disease

in all of these conditions → There is failure of closure of the Bladder neck During Orgasm → The semen Returns

in the retrograde Direction to The Bladder

- They experience orgasm But NO semen propulsion

* Ejaculation with out orgasm :-

- less Common But may occur in some Cases of neurological illness

* Orgasm without Refractory period

- Occur in men with Micropenis D.t → androgen insensitivity
- They feel multiple Orgasms without refractory periods
- But these Orgasms are not accompanied By ejaculation.
- This may explain The absence of Ref. period.

* Refractory period without orgasms :-

[paradoxical refractory period]

- Occur in → men > 50yr.
- explained By → Normally : During the excitation phase → most men have The

ability to regain erection when these erections become less rigid. if the excitation is prolonged \Rightarrow so as long as ejaculation doesn't occur -

- men over 50 yr \rightarrow may lose this ability to regain their erection despite they didn't ejaculate.

(B) Sexual Response Cycle in Female

A Excitation phase:-

a Genital changes:-

1- External Organs:-

- The excitation phase occurs within 10-30 sec of the initiation of sexual stimulation. which may be • psychological • physical
- The Female Differ from the male in the fact that they are stimulated more By:-
The psychological Factors

Rather than the physical factors (women may be sexually responsive to specific male while a man can be able to responsive to a wide range of sexually attractive females)

- The Basic physiological event is = Vasocongestion.
- The Clitoris undergoes enlargement in the Diameter By 2 folds Rather than the Length.
- The Labia minora Become = Swollen with flattening and separation of the Labia majora.
- The Breast \rightarrow enlargement in size specially in women who didn't nurse with visible veins of skin.
- Nipple \rightarrow erection \rightarrow Due to contraction of small muscle fibers

2- Internal Organs :-

- The first and the most important sign of excitation in the Female is: appearance of vaginal transudate within 10-30 sec of sexual stimulation
- Its produced By: Vasocongestion in the wall of the vagina \Rightarrow transudation of this clear mucoid fluid.
- Its main function is to:- Facilitate the process of penile intromission without difficulty.
- This is Not a vaginal secretion \rightarrow Because there are No secretory glands in the vagina.
- The secretion of the ~~vaginal~~ Clitoral glands and the Bartholin glands \rightarrow Not important in vaginal lubrication.

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(b) Extragenital changes :-

- = The same of that Male
- Sex Flush \rightarrow more common occur in 50-70%.

Plateau phase :-

(a) Genital changes :-

1- External Organs :-

- * the Clitoris \Rightarrow more Congestion But its Retracted against the pubic Bone. This may give \rightarrow False impression to the Husband of absence of excitement \Rightarrow Not True
- This Retraction helps to \Rightarrow Protect the Very sensitive Clitoris from Direct stimulation.
- The Clitoris undergoes indirect stimulation (By) - being pressed upon as a part of the vulva By the Pubic Bone of Husband or (By) traction on it By the clitoral hood (the fused upper part of the labia minora)

ORGASM phase:-

• Introduction •

(a) Genital Changes:-

- Physiologically:- The orgasm in female ch. ch By (5-15) rhythmic contractions at 0.8 second intervals of the perineal, uterine, vaginal, muscles

- Subjectively:- The orgasm described as follows:-

- 1- The orgasm has its onset with suspension of a momentary cessation of the consciousness -
- This is followed immediately By:- intense sensual awareness of the Clitoris → that radiates upward into the pelvis associated e' a

Sense of bearing Down or expelling

2- Then there is a sensation of warmth moving from the pelvis to the whole Body.

3- There may be a sensation of ~~warmth~~ muscle contractions felt in the vagina and pelvis.

"pelvic throbbing"

- It may be associated e' involuntary vocalization desire of closeness or after-play.

(b) Extragenital Changes :- = male

Resolution phase :-

- ch. ch By:- Reversal of all the genital and extragenital changes that occur in previous phases

- The most important ch. ch feature:-

- The absence of Refractory period.

(The female has the capacity for multiorgasms without any Refractory periods in between as long as there is stimulation)

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Resolution phase:-

- ch. ch By:- Reversal of all the genital and extragenital changes that occur in previous phases

- The most important ch. ch feature:-

The absence of Refractory period.

(The female has the Capacity for multiorgasms without any Refractory periods in Between as long as there is Stimulation)

Effect of Aging on the Sexual Response Cycle:-

male

- excitation phase:- more prolonged and The male need more Direct genital stimulation for erection to occur
- mild ↓ in Rigidity of erection
- The plateau phase:- Shortened D.t lesser intensity
D.t ↓ ejaculate volume
- The Resolution phase:- Prolongation of Ref. Period → upto Days or weeks

Female

- Excitation phase:- + Plateau phase:- less vaginal lubrication
↓
painful intercourse (Dyspareunia)
- this pain accentuated By the Atrophic mucosal change
↓ + expansion of the vagina
- Breast size - flush:- Reduced or absent
- Orgasm phase:- associated e pain

Male vs Female Orgasm:-

- | male | female |
|-----------------------------------|--|
| - physical Factors more important | - Psychological Factors more important |
| - male e Refractory Period. | - multiorgasmic |
| | - No Refractory period. |

Clitoral vs Vaginal Orgasms:-

- False Concept:- the female depend on clitoral stimulation in Reaching the orgasm During their psychosexual Development and when they are mature they depend on vaginal stimulation for their orgasms
- If the women need clitoral stimulation So They are immature
- other reports:- Classify the orgasm into
 - ⊛ vulval orgasm
 - ⊛ uterine orgasm
 - ⊛ blended orgasm
- The Basic Rule:- the Clitoral stimulation is an essential event in most of Healthy mature females to Reach orgasm

≡ The role of (G-spot) in female orgasm:

- Grafenberg → The first one identify a spot in the anterior vaginal wall with special erotic sensitivity
- This concept couldn't be proved

≡ Female Sex Flush - Sex Skin:

- Sex Flush → Represent the colour changes of the skin of the Breast and abdomen during the excitation and plateau phase

• Sex Skin →

Represent the colour changes of the skin of labia minora during the plateau phase just before the orgasm.

≡ Female Erection and Ejaculation.

- Erection: occur in the nipple & clitoris during excitation phase
- Internal Erection: The congestion and the expansion of the vagina.
- Ejaculation: Semen-like fluid that comes from the urethra during orgasm and said that it come from "female prostate" which is rudimentary Skene's gland around urethra.
- all these concept Not proved.
- most of these female that show this phenomenon have urinary stress incontinence occur during straining or sexual arousal rather than True ejaculation



Behavioural Aspect :-

• non-Coital activity → the sexual activity between the partners apart from sexual intercourse.

C misleading name → Foreplay
→ after-play.

(A) Non-Coital Activities:-

(a) Touching :-

- important way of communication between male-female → expressing the need of Love-Sex.

- important factor in sexual pleasure and giving sensation of being Loved, intimate, wanted

- Touching include :-

Hand - Body - Cuddling - kissing

(b) Genital Touching :-

(*) Basic Rules :- The genital

area in Both Female-male → Highly Sensitive to touch

- Simplified in 3 heading :-

- Variation
- Lubrication
- demonstration

Variation

- from sex to other
- from person to other
- same person at different Times

Lubrication

- The tissue of The Valva, Vagina Penis ↓
- irritated - painful without sufficient lubrication
- Some lubricants can cause → genital Dermatitis
- most of them are Spermicidal ↓
- Cause infertility

"Hands-on" Demonstration

- Simplest - Accurate way to knowing the ideal method of genital stimulation by the other parent
- The person place a hand on top of other Partner's Hand ↓
- To Direct him to the ~~methods~~ sites and the methods of genital stimulation that give more satisfaction

④ Practical points:-

Female genital Stimulation

- most female enjoy Firm & sustained rubbing of the shaft of clitoris Directly or indirect Stimulation By:- Caressing the vaginal lips & mons & perineum
- Tip of the clitoris Better Not to Rubb Because it's over Sensitive → Uncomfortable + irritating During Touch Specially:- Early stages without sufficient Lubricants

male genital Stimulation

- when penis is flaccid → most male prefer:-
 - light Stroking
 - OR • Caressing of the penis.
- Vigorous stimulation at this stage → Uncomfortable Cause performance anxiety. Due to:- lack of Rapid erectile Response
- when penis become erect → prefer firm stimulation with up + down movement of the hand around shaft

③ Oral-Genital Contact:-

Oral stimulation of Female Genitalia

[Cunnilingus]

= lick

- most females Highly aroused By:- Cunnilingus
- Can Reach Orgasm.
- No Harmful effect

Oral stimulation of male Genitalia

[Fellatio] = Fellation

- Highly arousing for males
- No medical Risk.
- Oragenital contact is a Hygienic as Mouth-to-mouth kissing
- The natural genital secretion are clean.
- It's an:- intimate + close Relationship

(B) Coital Activities:-

- The Duration of intercourse → 5-20 mints according to:- Age - Race, Physical fitness
- Drug therapy & Relation Between partners

- mean Frequency of intercourse in American married couples :-
4.8/week.
Decline to 1.8/week in 50s
1.3/week → in 60s
- Higher among Africans Than Americans

(a) Male Superior position :-

- The Commonst. classic position with the Female is lying on her Back "Missionary position"
- The main advantage of this position is to gives the Best Chance of Conception →
Since the Semen pools in a position in the Vagina closest to The mouth of the Cervix
Specially when the women wraps her legs around The Back of her Partners → Deeper penetration inside the vagina.

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- Disadvantage of this Situation →
- Female discomfort from the weight of the male
- Difficult of manual stimulation of the Clitoris as the hands of the male Supporting his Body.

(b) Female Superior Positions :-

- Female may sit or lie against her partners.
- Its more Common in :- Highly educated Couples That accept it
- The Advantages :-
For Female → her ability to Control her ~~partner~~ Pelvic movements for MAX clitoral stimulation that helped By :- male who has his Hands Free → for additional stimulation of her Body and Genitalia
- Suitable for :-
- Female with orgasmic Dysfunction.
- Female in late pregnancy.
- The Advantages for male :-
- Suitable for male who have premature ejacult as he has more ejaculatory Control in this position.

- The Disadvantage:-
the psychological discomfort from
Some men who believe that the
man should be superior to women

(C) Side to Side position:-

- The partners are Facing each other
By lying on their Sides.
- The Advantages:- Both partners
are Relaxed with Free Hands for
more stimulation During intercourse.
- The Disadvantages:-
 - Difficult penile intromission in
This position
 - less free penile thrusting movement

(d) Rear Entry position:-

- The man faces the women's Back
and the penis is placed into the
vagina from Behind.

- The women may lie on her face or side.

- The Advantage:-

- The additional manual stimulation for the
Breasts or the clitoris
- Suitable for women During late pregnancy.

- The Disadvantage:-

Lack of eye contact

Aim of Discussion:- of the motivational/
Physiological and Behavioral aspects of sex.
to study normal sexual function as an essential
and preliminary step for the study of the diagnosis
and the ttt of different sexual dysfunction

- Should know that sex → is an intimate
Relationship Rather than a mechanical act